

### ABSTRACT OF THE DISCLOSURE

A biological sensor which includes: a porous semiconductor structure comprising a central layer interposed between upper and lower layers, each of the upper and lower layers including strata of alternating porosity; and one or more probes coupled to the porous semiconductor structure, the one or more probes binding to a target molecule, whereby a detectable change occurs in a refractive index of the biological sensor upon binding of the one or more probes to the target molecule.

Methods of making the biological sensor and methods of using the same are

10 disclosed, as is a detection device which includes such a biological sensor.